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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,212	10/27/2003	Raymond H. Thomas	H0004412US	4510

7590 09/20/2005

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EXAMINER

HARDEE, JOHN R

ART UNIT	PAPER NUMBER
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1751

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/695,212	Applicant(s) THOMAS ET AL.	
	Examiner John R. Hardee	Art Unit 1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18,25-31 and 36-42 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18,25-31 and 36-42 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>(2)</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-14, 16-18, 25-31 and 36-42 remain rejected under 35 U.S.C. 103(a) as being unpatentable over JP 4-110388 in view of Brown, US 5,370,812. The JP reference discloses that fluoroalkene refrigerants, including 1,3,3,3-tetrafluoropropene, are useful refrigerants for cooling and in heat pumps. In the middle passage of col. 7, it is disclosed that it can be mixed with refrigerants such as R22, R32, R124, R125, R134a, R142b, R143a and R152, and that such mixtures are soluble in refrigeration lubricants. In cols. 11-12, its use in a heat pump with cooling and evaporation at 5 degrees C is disclosed. Under these circumstances, compression and cooling of the surrounding air is clearly taking place, as is heating of the exhaust air. Use of specific lubricants is not disclosed. Brown teaches lubricant compositions which are useful with hydrofluorocarbon refrigerants (abstract). Suitable lubricants include polyalkylene glycols, polyalkylene glycol esters and polyalkylene glycol ethers as depicted at col. 2, lines 52+. One or both terminal groups may be alkyl or hydroxyl, and the terminal group may be an ester, thereby comprising a heteroatom. The polyalkylene glycol most preferably forms 90-99% by weight of the lubricant, with the rest being a hydrocarbon lubricant (col. 3, lines 35+). It would have been obvious at the time that the invention was made to use the polyalkylene glycol-hydrocarbon lubricants of Brown with 1,3,3,3-tetrafluoroethylene refrigerant as disclosed in the JP, because the JP teaches that

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1,3,3,3-tetrafluoroethylene is miscible with refrigeration lubricants when combined with one of several specific saturated hydrofluorocarbon refrigerants, and Brown teaches polyalkylene glycol-hydrocarbon lubricants that are useful with hydrofluorocarbon refrigerants. Discovery of the lubrication-effective amount of a known lubricant with a known refrigerant amounts to routine optimization. The miscibility is disclosed in the prior art with sufficient specificity to give a high expectation of success.

3. Claims 1-15, 17, 18, 25-31 and 36-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 4-110388 in view of Thomas et al., US 5,254,280. The JP reference is summarized above. Use of specific lubricants is not disclosed. Thomas discloses refrigerant compositions comprising a hydrofluorocarbon, a polyalkylene glycol lubricant comprising a fluorinated head group and a hydrocarbon lubricant (col. 7, lines 47+). The head groups may also be alkyl or hydroxyl. It would have been obvious at the time that the invention was made to use the polyalkylene glycol-hydrocarbon lubricants of Thomas with 1,3,3,3-tetrafluoroethylene refrigerant as disclosed in the JP, because the JP teaches that 1,3,3,3-tetrafluoroethylene is miscible with refrigeration lubricants when combined with one of several specific saturated hydrofluorocarbon refrigerants, and Thomas teaches polyalkylene glycol-hydrocarbon lubricants that are useful with hydrofluorocarbon refrigerants. Discovery of the lubrication-effective amount of a known lubricant with a known refrigerant amounts to routine optimization. The miscibility is disclosed in the prior art with sufficient specificity to give a high expectation of success.

Response to Arguments

4. Applicant's arguments filed September 2, 2005 have been fully considered but they are not persuasive. Applicant's arguments regarding the solubility of the elected fluoroalkene in common lubricants is well taken, but the reference provides clear limitation to make such mixtures, provided that one of several saturated fluoroalkanes is present to provide solubility. Applicant's recitation of "consisting essentially" scope does not overcome the reference, as the addition of a known refrigerant would not adversely affect the "basic and novel" characteristics of a refrigeration composition.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner, Dr. John R. Hardee, whose telephone number is (571) 272-1318. The examiner can normally be reached on Monday through Friday from 8:00 until 4:30. In the event that the examiner is not available, his

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supervisor, Dr. Yogendra Gupta, may be reached at (571) 272-1316.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'J. Hardee', is positioned above the printed name.

John R. Hardee
Primary Examiner
September 15, 2005